Call for scholarship application for PhDs and MSc positions in the framework of the Intra Africa PATH project

PATH Project: *Capacity Building of African Young Scientists in Precision Agriculture Through Cross-Regional Academic Mobility for Enhanced Climate-Smart Agri-Food System*

1- Background

Climate change is one of the main problems affecting food and nutrition globally, particularly in sub-Saharan Africa. Adapting to and mitigating climate change in the agri-food sector requires merging **information technologies, genetic innovations, and sustainable farming practices** to empower the agricultural youth sector to create effective and locally adapted solutions. **Precision Agriculture applied to crops (PAAC)**, has been advocated as a strategic solution to mitigate/adapt agriculture at a smallholder and global scales to climate change effects and enhance the digital skills of the younger generations, whilst increasing their interest in agriculture. PATH project, funded by the Intra-Africa Program of the **Education, Audiovisual and Culture Executive Agency (EACEA) of the European Commission,** is an initiative of four highly qualified public universities from three African regions and one university in Europe to advance knowledge in precision/digital agriculture. The Project is coordinated by the University of Abomey-Calavi (UAC), Republic of Benin. Partner universities include the University of Cape Coast in Ghana (West Africa), the University of Rwanda (Eastern Africa), the University of Eswatini (Southern Africa) and Institut Agro Montpellier in France (Technical partner). The University of UM6P in Morocco is also member of the consortium as associate partner.

The objectives of PATH project are to:

- train 12 PhD and 32 MSc African scholars in precision agriculture applied to crops (PAAC) to upgrade the continent's capability;

- build capacity of 10 young African staff and 10 trainees in PAAC; and

- improve PAAC and ICT4Ag (Information and Communication Technology for Agriculture) curricula and research at the participating African Higher Education Institutions (HEIs) to address more efficiently the current challenges of agriculture and climate change.

We value collaboration with seed companies and private enterprises involved in digital agriculture for hosting trainees for entrepreneurship.

2-Priority species per country and related topics

Selected crops per country as well as key words for PhDs and MSc subjects can be found in the Table below:

Table 1. Selected crop per country along with key words for PhDs and MSc subjects

Countries	Crops	Key words for PhD candidates	Key words for MSc candidates
Benin	Pineapple	*Artificial intelligence + Crop biophysical models+ Precision farming + Satellite*	*Artificial intelligence + Crop biophysical models **OR** Precision farming + Satellite*
	Maize	*Machine learning + Image processing, Internet of things + Pest management + Precision farming*	*Pest Management + Precision farming*
	Groundnut	*Precision nutrients, precision pest management and high throughput phenotyping + artificial intelligence*	*Precision nutrient and water management + remote sensing*
	African eggplants	*-*	*Genomics and Precision Agriculture*
Ghana	Pineapple	*Artificial intelligence + Crop biophysical models+ Precision farming + Satellite*	*Artificial intelligence + Crop biophysical models **OR** Precision farming + Satellite*
	Sorghum	*Artificial intelligence + Crop biophysical models+ Precision farming + Satellite + Remote Sensing of Soils*	*Geospatial Data and mapping + precision farming **OR** Remote Sensing of Soils + Precision farming*
	Cassava	*Artificial intelligence + Crop biophysical models+ Precision farming + Satellite + Remote Sensing of Soils*	*Geospatial Data and mapping+ Precision agriculture OR Remote Sensing of Soils and Crops (including Phenotyping) + Precision Agriculture*
	Maize	*-*	*Climate-smart pest protection strategies for selected Maize varieties in Ghana +Artificial intelligence*
Eswatini	Maize	*Application of models to predict crop growth and yield (Artificial intelligence + Decision support + Precision nutrient)*	*Machine learning models + pest management + yield OR Detection of pest infestation and spot application of pesticides*
	Sweet Potatoes	*Screening of planting material through use of biotechnology techniques (On farm experimentation + Genomics and Precision agriculture)*	*Screening of planting material through use of biotechnology techniques (On farm experimentation + Precision agriculture)* *OR* *Pest and disease management + Precision farming*

	Potato	*Screening of planting material through use of biotechnology techniques (On farm experimentation + Genomics and Precision agriculture)*	*Screening of planting material through use of biotechnology techniques (On farm experimentation + Precision agriculture)* **OR** *Pest and disease management + Precision farming*
	Tomato	*-*	*Machine learning models + disease + prediction of tomatoes*
Rwanda	Potato	*Site specific nutrient + modeling + artificial intelligence +climate smart agriculture* **OR** *Field Pest Management and remote sensing + Artificial intelligence +climate smart agriculture*	*Site specific nutrient + modeling + artificial intelligence +climate smart agriculture* **OR** *Field Pest Management and remote sensing + Artificial intelligence +climate smart agriculture*
	Beans	*Site specific nutrient + modeling + artificial intelligence +climate smart agriculture*	*Site specific nutrient + modeling + artificial intelligence +climate smart agriculture* **OR** *Bacterial blight, anthracnose and rust diseases management + Precision farming*
	Cassava	*Artificial intelligence + Crop biophysical models+ Precision farming + Satellite + Remote Sensing of Soils + Internet of Things + Site specific nutrients*	*Detection, identification and mapping of cassava brown streak and cassava mosaic virus diseases in Rwanda using different remote sensing technologies* **OR** *Artificial intelligence and climate smart agriculture practices for cassava growth and yield parameters*
	Sorghum	*-*	*Geospatial Data and mapping + precision farming **OR** Remote Sensing of Soils + Site specific nutrients*

Students are invited to develop their research proposal on a selected crop with focus on the key words listed in Table 1.

P.S. The hosting university reserves the right to change the crop and/or modify the subject depending on the gap in the literature.

3- Scholarship: duration and financial support

- For PhD students, the maximum duration of a scholarship is 36 months for **degree seeking mobility**,
- For MSc students, the maximum duration of a scholarship is 12 months for **credit seeking mobility**,

The scholarship includes subsistence allowances (including the return ticket of the students during his mobility, settling-in allowances), participation costs, contribution to research costs and insurance in line with EACEA procedures.

- **PhD students will receive a monthly stipend of 1230 Euros. This also includes (1) travels cost to and from the host institution and (2) settling allowance.**

- **MSc students will receive a monthly stipend of 890 Euros. This also includes (1) travels cost to and from the host institution and (2) settling allowance.**

Research costs, tuitions fees, costs related to training, participation to conferences and insurance costs are covered by the host institution following EACEA guidelines. Note that participation to conferences and special training has to be approved by the supervision team in the host institution.

4- Eligibility

4.1. Eligibility for PhD and MSc students

To apply to this call, students should be either (1) proficient in agronomy (agricultural sciences) with a willingness to learn ICT or (2) proficient in ICT with a willingness to learn agricultural sciences. Therefore, **students holding degrees in agronomy (or related fields) or ICT (or related fields) are eligible**. In addition, eligible ''students'' must comply with the below criteria at the time of the application for a scholarship:

> **a) at the time they apply for a scholarship, candidates must be national of and resident in an African country.**

b) **be registered/admitted in or having obtained a degree in a HEI from:**

*b-1) one of the HEIs included in the PATH consortium (**Target group 1**). This target group includes students from all partner universities as follows:*

- University of Abomey-Calavi, Republic of Benin

- University of Cape Coast, Ghana

- University of Rwanda, Rwanda

- University of Eswatini, Eswatini

*b-2) HEI not included in the PATH consortium but established in an EACEA eligible country (**Target group 2**).* This target group includes students registered/admitted in or having obtained a degree from another HEI other than University of Abomey-Calavi, University of Cape Coast, University of Rwanda, University of Eswatini, but established in Africa.

and

c) **have sufficient knowledge of the language of the courses in the host countries.**

The consortium involves Francophone and Anglophone countries and will promote bilingual aptitude in students throughout the implementation of the project., Language courses will be offered to help students improve their skills.

In each HEI involved in the consortium, two main faculties will be involved in the students training: the faculty of agricultural sciences and the faculty or department of ICT (ComputerScience).

Students having benefited from scholarship(s) under the previous intra-Africa Academic Mobility Scheme are eligible to receive scholarship under this current call.

5- Number of available scholarships for this first call

The PATH project is open to all students from the partner universities (Target Group 1) and those from other African universities (Target Group 2). **Currently, twelve (12) PhDs, and sixteen (16) MSc are available.**

6- Submission

The Scholarship application form together with other required documents should be sent **as a unique PDF attachment** to emails indicated below. Other required documents ~~are~~ listed in the application form and include:

1. Cover letter

2. Scholarship Application form (available <mark>here</mark>)

3. Student research proposal or detailed research concept note (for PhD and MSc)

4. National ID or Copy of Passport Data page

5. Certificate of previous degree /or a Proof that the degree has been completed (for PhD candidates)

6. First year MSc transcript records (for MSc applicants)

7. Proof of enrolment or eligibility for enrolment in second year MSc degree ~~course~~ (that is research component of MSc) from home institution (for MSc applicants)

8. MSc transcripts (academic records) for PhDs

9. A support letter from home HEIs (from an authority of the University, Vice chancellor or Dean or Vice Dean or Head of Department/School)

10. Two recommendation letters

11. Curriculum Vitae.

12. Certificate of English or French language skills if any

13. Proof of socio-economic vulnerability attested by an authority of the home HEI. The letter should be on ~~the~~ HEI letterhead ~~header~~ ~~and~~ with Email and contact of the signatory person.

14. Any other supporting documents

In order to meet the general selection requirements for MSc Mobility Grant (maximum 12 months' scholarship mainly for research), the applicant must have completed the first two semesters of a Master of Science course in Agronomy or in ICT (or related fields), in his home country. It is obligatory that the students have their first year MSc recognition and academic transcripts and **a proof that he/she has completed the course work of the** ~~second year of~~ **MSc.**

For PhD degree, applicants should hold an MSc degree in Agronomy or ICT or related fields.

For the choice of the host university, the students are allowed to only apply for the University of Abomey-Calavi (Benin), University of Cape Coast (Ghana), University of Rwanda (Rwanda) and, University of Eswatini (Eswatini).

7- Contact

Due to difference in the partners higher education system, specific academic arrangements will be performed to assure that scholars are admitted in the right program and can make benefit of the mobility. These arrangements will be fixed on a case-by-case basis between the host HEI and Coordinating Institution.

For more information, please contact Mr. Christel Azon, christelazon@gmail.com and copy Dr Carlos Houdégbé, houdariscarl@gmail.com and Prof Kwame Agyei, kfrimpong@ucc.edu.gh.

8. For more information you can contact the following local coordinators:

Benin:

Eswatini-Prof. A.M. Manyatsi   manyatsi@uniswa.sz

Ghana

Rwanda

89- Deadline

Applications should be submitted To: mobilitypathb@gmail.com and copied Prof Kwame Agyei kfrimpong@ucc.edu.gh and Dr Dompreh Kwadwo

kwadwo.dompreh@ucc.edu.gh no later than **June 15th, 2024**. Shortlisted candidates will be contacted and invited for interviews.

Female and socio economic vulnerable applicants are strongly encouraged to apply.

The list of academic programmes offered by different host institutions can be found below

(Please add the following academic programmes under the University of Eswatini: PhD by Research in Horticulture & PhD by research of Computer Science)

LIST OF ACADEMIC PROGRAMMES*
Project Acronym: PATH

Beneficiary name	Country**	Type of programme**	Name of the programme	Thematic field of study
University of Abomey-Calavi	Benin	Master	MSc in Biotechnology and Plant Breeding	Agricultural sciences
University of Abomey-Calavi	Benin	Master	MSc in Sustainable Management of Tropical Soil Fertility	Agricultural sciences
University of Abomey-Calavi	Benin	Master	MSc in Sustainable Pest Management and Biopesticide Development	Agricultural sciences
University of Abomey-Calavi	Benin	Doctorate	PhD in Plant Genetic Resources and Crop Protection	Agricultural sciences
University of Abomey-Calavi	Benin	Master	MSc in Information System and Computer Networks	Computer Science
University of Abomey-Calavi	Benin	Master	MSc in IT Security	Computer Science
University of Abomey-Calavi	Benin	Master	MSc in Software Engineering	Computer Science
University of Cape Coast	Ghana	Master	Land Use and Environmental Science	Land Use, Precision Agriculture,climate Change, climate Change
University of Cape Coast	Ghana	Doctorate	Land Use and Environmental Science	Land Use , Precision Agriculture
University of Cape Coast	Ghana	Master	Land Policy and Administration	Land Policy and Administration
University of Cape Coast	Ghana	Doctorate	Computer Science	Embedded systems
University of Cape Coast	Ghana	Master	Computer Science	Embedded systems
University of Eswatini	Eswatini	Master	MSc in crop Science	Agricultural Sciences
University of Eswatini	Eswatini	Master	MSc in Horticulture	Agricultural Sciences
University of Eswatini	Eswatini	Master	MSc in Environmental Resource Management	Agricultural Sciences
University of Eswatini	Eswatini	Doctorate	PhD by Research (Crop Production)	Agricultural Sciences
University of Eswatini	Eswatini	Doctorate	PhD by Research (Biosystems Engineering)	Agricultural and Biosystems Engineering
University of Eswatini	Eswatini	Master	Computer Science	Applied Computer Science
University of Rwanda	Rwanda	Master	MSc, Crop Science	Agricultural Sciences
University of Rwanda	Rwanda	Master	MSc, Agroforestry and Soil Management	Agricultural Sciences
University of Rwanda	Rwanda	Master	MSc, Agribusiness	Agricultural Sciences
University of Rwanda	Rwanda	Doctorate	Crop Science	Agricultural Sciences
University of Rwanda	Rwanda	Doctorate	Agroforestry and Soil Management	Agricultural Sciences
University of Rwanda	Rwanda	Master	Africa Centre of Excellence in Internet of Things	Computer Science